NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION

STANDARD BARBED AND BARBLESS FENCE
(Feet)
CODE 382(a)

Application of Fence (382) shall adhere to the Wyoming NRCS Conservation Practice Standard.

I. SCOPE

▪ The work shall consist of furnishing materials and installing barbed wire, smooth wire, or combinations thereof, at the location(s) shown on the plan map and, if needed, on the drawings or as staked in the field. Fencing includes brace assemblies, gates, cattle guards, and other components required to meet site conditions and achieve objectives for practice application.

II. SPECIFICATIONS

▪ Planned designs departing from available specifications will be developed on a case-by-case basis and submitted to the State Resource Conservationist for approval prior to installation.

▪ All materials used in construction shall be new unless otherwise stated. At a minimum, the construction materials must meet or exceed the strength and durability of the following specifications:

Fence Wire

▪ Barbed wire shall be either zinc or aluminum coated that meets or exceeds ASTM A-121 standard. Wire shall be No. 12 ½ gauge diameter or greater and have a minimum double strand breaking strength of 950 pounds. All wire shall be flexible enough so that proper splices can be made without damage to wire or coating. Barbs shall be spaced not more than 5 inches apart and shall be of 14 gauge or heavier wire with at least two points. All barbed wire shall consist of two strands of wire.

▪ Barbless wire shall meet or exceed the requirements established herein for barbed wire except those covering barbs.

▪ All line wires shall be tied-off on the anchor pull-post of gate, corner, and in-line brace assemblies. Wire ends shall be double wrapped around the anchor pull-post, stapled, and twisted back on the stretched line wire with at least six tightly wound wraps.

▪ The fence wire shall be placed on the side of the post expected to receive the most pressure.

▪ Every wire shall be attached to every post with an approved staple, clip, or fastener.

Bracing Wire

▪ Brace wires (tension members or guide wires) shall be formed from two complete loops of No. 9-gauge smooth wire or two complete loops of No. 12 ½ -guage barbed or barbless wire and be zinc or aluminum coated as per ASTM A-641 or ASTM A-121 standards.

Line Posts

▪ Maximum spacing between line posts shall be twenty (20) feet with or without stays.

▪ Depth in soil of wooden line posts shall be a minimum of thirty (30) inches.

▪ Depth in soil of steel "T" or grooved "Ω" posts shall be a minimum of twenty-two (22) inches.

▪ Line posts must be set at significant high and low points along fence line to maintain proper wire height.

▪ All wooden posts except pitch pine, juniper, red cedar & Osage orange shall, as a minimum, be pressure treated with an approved EPA method such that complete penetration of the sapwood shall be obtained.

▪ Regular wood posts shall be a minimum nominal diameter of three and a half (3.5) inches inside the bark.

▪ Wood posts used for jacklegs shall be a minimum nominal diameter of five (5) inches inside the bark.

▪ Juniper, Osage orange, or red cedar wood posts shall be a minimum nominal diameter of two (2) inches inside the bark.

▪ All standard steel fence-posts shall have a minimum weight of 1.33 pounds per foot of length exclusive of anchor plate. They shall have suitable means for supporting wires such as studs, grooves, etc. Posts with lugs or lips that are punched out of the post itself shall not be used. All steel posts shall have a suitable anchor plate securely fastened near the bottom.

▪ Railroad ties or telephone poles that are sound and free from decay may be used, so long as minimum diameter and length requirements are met for the type of fence to be constructed.

Braces and Posts

▪ All wooden posts except pitch pine, juniper, red cedar & Osage orange shall, as a minimum, be pressure treated with an approved EPA method such that complete penetration of the sapwood shall be obtained.

▪ Regular wood posts shall be a minimum nominal diameter of five (5) inches inside the bark.

▪ Juniper, Osage orange, or red cedar wood posts and shall be a minimum nominal diameter of four (4) inches inside the bark.

▪ Wooden horizontal or diagonal brace material shall be three (3) inch by four (4) milled timber or four (4) inch diameter minimum. Two (2) inch diameter minimum steel pipe may also be used.

▪ Standard steel fence-posts may be used for bracing if connected with commercially available hardware designed for this use.

▪ Steel pipe, having an outside diameter of two and three eighths ($2\ ^{3}/_{8}$) inches or larger outside diameter and a weight of 4.7-pounds per lineal foot or greater may be used.

▪ Depth of wood posts in soils shall be a minimum of thirty-six (36) inches.

▪ Depth of steel pipe in soils shall be a minimum of thirty (30) inches and set in concrete.

NRCS, WY
May 2006

▪ Bracing is required at all corners, gates, direction change angles, and steep vertical angles in the line.

▪ Maximum distance between brace panels in the fence line shall not exceed thirteen hundred and twenty (1320) feet on level terrain and shall be installed at lesser intervals wherever horizontal direction of the fence changes more than fifteen (15) degrees or where vertical angles cause excessive strain on fasteners and posts.

▪ All corner and direction change braces shall be braced in both directions of the fence.

▪ For standard horizontal braces, a tension member will be incorporated in all brace panels. This will be composed of two complete loops of No. 9-gauge smooth wire or two complete loops of No. 12 ½-guage wire or its equivalent cross sectional area in heavier gauge wire, either smooth or barbed. This tension wire shall extend from a point approximately equal to the top wire of the fence, but at least one inch below the top of the brace post, to near, but not below the ground level of the post being braced. The brace wire shall be twisted to provide needed rigidity.

▪ All horizontal or diagonal brace panels shall maintain a minimum two to one ratio of brace length to height of top wire, but length should never be less than six and one-half (6 ½) feet or more than twelve (12) feet.

Stays

▪ Stays are not required, but may be used as needed for site condition and fence duty.

▪ Stays for wire fences shall be of wire especially fabricated for this purpose and swing free of the ground to permit the fence to sway when contacted by animals.

Staples and Clips

▪ In wood posts, staples shall be serrated and a minimum of one and one-half (1 ½) inches in length and driven diagonally with the wood grain.

▪ Serrated three-quarter ($^{3}/_{4}$) inch staples may be used in hardwoods.

▪ The minimum diameter of staples shall be No. 9 -gauge.

▪ For grooved steel posts, serrated staples will be driven into the groove according to the manufacturer's recommendations.

▪ Space shall be left between the staple and post to permit movement of the wire.

▪ Any suitable fastener that is fourteen (14) gauge minimum, showing good workmanship, that holds the wire at the proper height and allows the wire to freely contract and expand may be substituted for special clips, but shall not be used in lieu of serrated staples when staples are recommended by the post manufacturer.

Anchoring

▪ In crossing narrow drainage ways or draws, a weight or dead-man anchor equivalent to a 12-inch X 12-inch X 12-inch concrete block shall be fastened to the fence wires by suspension wire or wires. This will be done in a

manner that will result in maintaining wire spacing and clearances approximately the same as that of the rest of the fence.

Gates

▪ Wire gates shall conform to the kinds, grades, and sizes specified for new fence and shall include the necessary fittings and stays.

▪ Timber gates shall be constructed of two (2) inch or larger dimensional lumber.

▪ Commercial gates shall be of durable material and installed in accordance with the manufacturer's recommendations.

▪ Fabricated metal gates shall be constructed of material of a quality and life span equivalent to the rest of fencing material.

Fence Height and Wire Spacing

▪ In areas where elk, deer or moose are likely to cross the fence, total fence height should not exceed forty-two (42) inches. Top two wires should be spaced a minimum of ten (10) inches apart, however twelve (12) inches is preferred.

▪ In areas where pronghorn are a concern, the bottom wire should be smooth and greater than sixteen (16) inches from ground level. If a sixteen (16) inch bottom wire will not meet the stated objective and a lower wire is needed, then the total fence height should equal thirty-two (32) inches high.

▪ Standard barbed or barbless wire fence shall not be less than thirty-two (32) inches high.

▪ The top wire shall be at least three (3) inches from the top of wooden posts and at least one (1) inch from the top of standard steel or steel pipe posts.

▪ See Table 1 for recommended fence designs**.**

Table 1. Recommended fence designs and wire heights, in inches from ground level, for various situations.

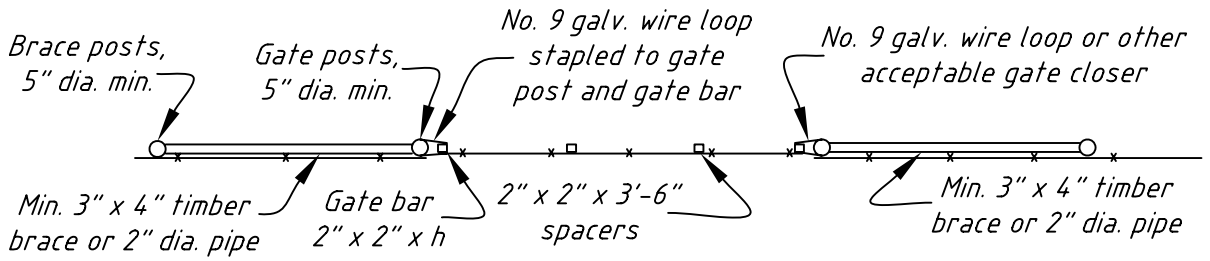
Mature Cattle or Calves with Big Game Concerns	
3-wire	16” smooth – 26” barbed – 38” barbed
4-wire	16” smooth – 23” barbed – 30” barbed – 42” barbed
5-wire	Not Recommended
Mature Cattle or Calves with no Big Game Concerns	
3-wire	16” barbed – 28” barbed – 40” barbed
4-wire	10” barbed – 20” barbed – 30” barbed – 42” barbed
Mature Cattle, Calves, and Sheep with no Big Game Concerns	
5-wire	10” barbed – 16” barbed – 24 barbed – 32 barbed – 42 barbed
Sheep with Big Game Concerns	
4-wire	16” smooth – 23” barbed – 30” barbed – 42” barbed
4-wire	10” barbed – 16” barbed – 24 barbed – 32 barbed

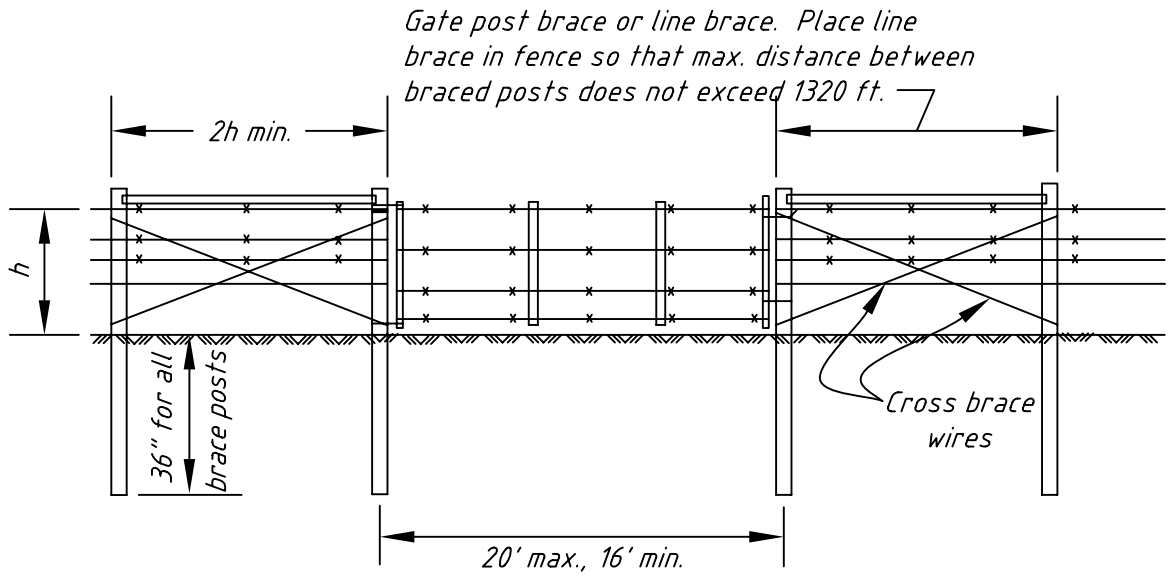
III. ADDITIONAL REFERENCES

United States Department of Interior Bureau of Land Management and United States Department of Agriculture Forest Service. 1988. **Fences**. Missoula Technology and Development Center, Missoula, MT.

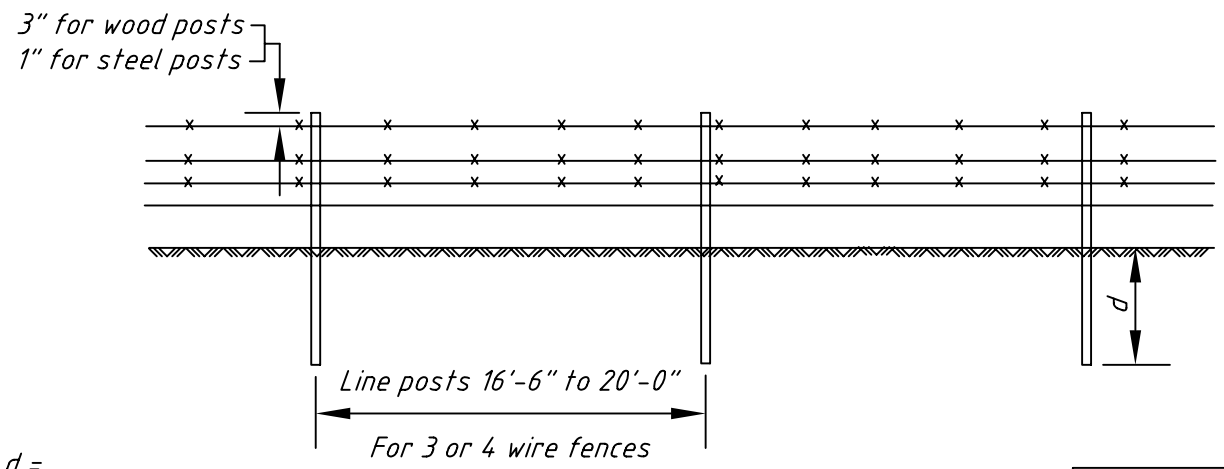
Wyoming Game and Fish Department. 2005. **Fencing Guidelines for Wildlife**. Habitat Extension Bulletin No. 53. Wyoming Game and Fish Department, Cheyenne, WY.

These publications can be found online at:http://www.wy.nrcs.usda.gov/technical/rangemgt/range.html





GATE SECTION



d = _____

h = _____

No. of wires = _____

Line post length = _____

Brace post length = _____

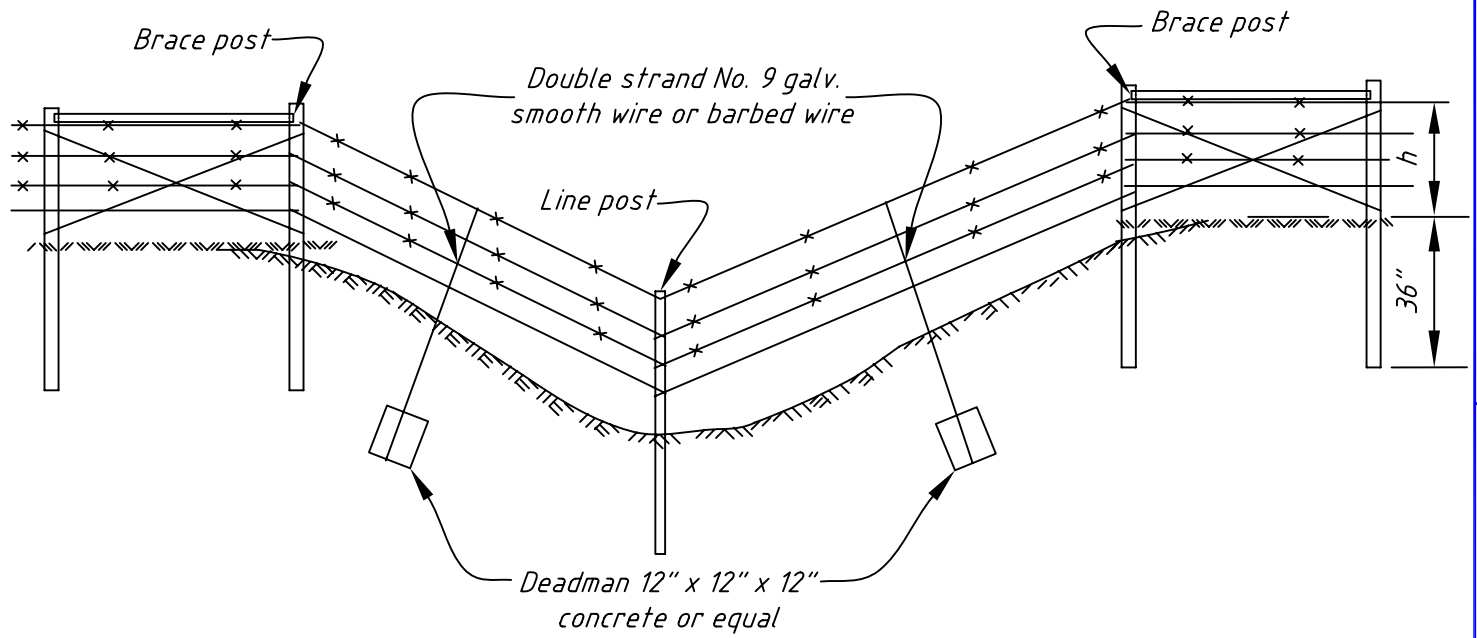
Stays (are/are not) required

Wire spacing from ground (in.) = _____ - _____ - _____ - _____

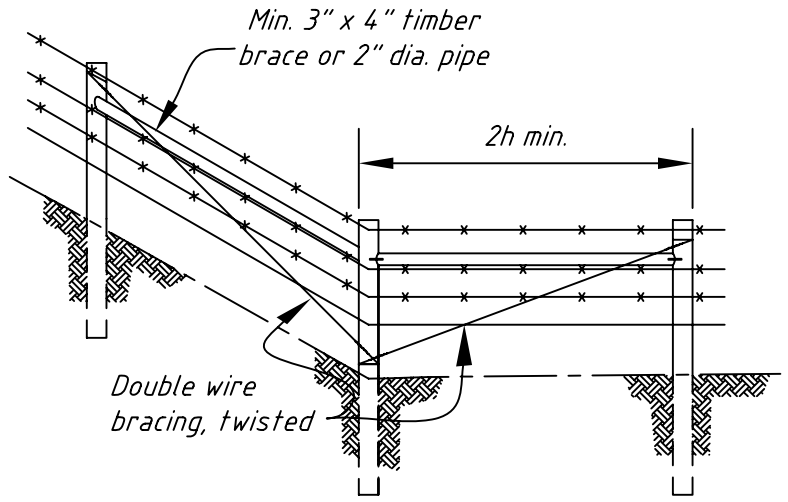
Wire type: barbed (b), barbless (bl) = _____ - _____ - _____ - _____

LINE FENCE SECTION

Depth d (inches)	
Line Wood Posts	Line Steel Posts
30"	22"



LINE FENCE ACROSS NARROW DRAWS



HORIZONTAL CORNER BRACE SECTION

NOTES:

1. For additional details, refer to Standard Barbed and Barbless Fence Specification 382(a).

Date

Designed

Drawn

Checked

Approved

Cooperator: _____ County Conservation District

4 STRAND POST AND WIRE FENCE

_____ County, Wyoming

USDA NRCS Natural Resources Conservation Service

File No.

Drawing No. 382(a)

Sheet of